

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
6 May 2004 (06.05.2004)

PCT

(10) International Publication Number
WO 2004/038038 A3

(51) International Patent Classification⁷: C12Q 1/68,
C12P 19/34, C07D 279/16

MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT,
RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR,
TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(21) International Application Number:
PCT/US2003/033429

(22) International Filing Date: 22 October 2003 (22.10.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/420,717 23 October 2002 (23.10.2002) US
60/439,978 14 January 2003 (14.01.2003) US

(71) Applicants (for all designated States except US): UNI-
VERSITY OF UTAH RESEARCH FOUNDATION
[US/US]; 615 Arapeen Drive, Suite 10, Salt Lake City, UT
84108 (US). IDAHO TECHNOLOGY, INC. [US/US];
390 Wakura Way, Salt Lake City, UT 84108 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): WITTWER, Carl,
T. [US/US]; 3479 South Crestwood Drive, Salt Lake City,
UT 84109 (US). DUJOLS, Virginie, E. [FR/US]; 2119
Royal Coventry Court, N° 31, Salt Lake City, UT 84121
(US). REED, Gudrun [DE/US]; 1122 South McClelland,
Salt Lake City, UT 84105 (US). ZHOU, Luming [CA/US];
373 North H Street, Salt Lake City, UT 84103 (US).

(74) Agent: POWLICK, Jill, T.; ICE MILLER, One American
Square, Box 82001, Indianapolis, IN 46282-0002 (US).

(81) Designated States (national): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE,
GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR,
KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK,

(84) Designated States (regional): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— as to the applicant's entitlement to claim the priority of the
earlier application (Rule 4.17(iii)) for the following desig-
nations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY,
BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC,
EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL,
IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU,
LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ,
OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY,
TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM,
ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ,
TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ,
MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY,
CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC,
NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG,
CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

Published:

— with international search report
— before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments

(88) Date of publication of the international search report:
22 July 2004

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: AMPLICON MELTING ANALYSIS WITH SATURATION DYES

(57) Abstract: Methods are provided for nucleic acid analysis wherein a target nucleic acid that is at least partially double stranded is mixed with a dsDNA binding dye having a percent saturation of at least 50% to form a mixture. In one embodiment, the nucleic acid is amplified in the presence of the dsDNA binding dye, and in another embodiment a melting curve is generated for the target nucleic acid by measuring fluorescence from the dsDNA binding dye as the mixture is heated. Dyes for use in nucleic acid analysis and methods for making dyes are also provided.

WO 2004/038038 A3